The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. - 74. (Cancelled)

75. (New) A method for representing on a computer the behaviour of a system having at least one element, said system being represented on the computer by executing a compiled generic description, a generic description comprising predetermined characteristics that affect the behaviour of one or more elements of said system in a predetermined environment; and a data file that contains one or more sets of numeric data and/or syntactic key words and/or a user defined algorithmic expression all related to a said predetermined characteristic being data that is not included in the complied version of the generic description, said method comprising the step of:

execution of the compiled generic description using an interval that uses data from the data file without recompiling the generic description to include the data obtained from the data file so as to calculate the behaviour of said system.

76. (New) A method according to claim 75 wherein said predetermined characteristics are defined by equations of motion based on a predetermined number of degrees of freedom of motion.

77. (New) A method according to claim 75 wherein said execution includes an interval step integration of the one or more elements in said system using one or more of said contents of said data file.

78. (New) A method according to claim 77 wherein said interval is time.

79. (New) A method according to claim 78 wherein said execution includes at least one derivative function and at least one time interval step numeric integration method.

80. (New) A method according to claim 79 wherein a said integration method is used once every time interval step.

81. (New) A method according to claim 80 wherein said derivative function is used by said integration method one or more times every time interval step.

82. (New) A method according to claim 81 wherein following each time interval step an array of one or more pointers to integration variables is updated allowing further integration variables to be created between time-steps.

83. (New) A method according to claim 79 wherein said integration method comprises a predetermined number of system element generic descriptions.

84. (New) A method according to claim 83 wherein said predetermined numbers of system element generic descriptions are ordered for use by said derivative function.

85. (New) A method according to claim 84 wherein when an element specific parameter in said execution is required, reference is made to data in said data file.

86. (New) A method according to claim 75 further comprising the step of:
b) managing the flow of data to and from said execution step with a data manager.

87. (New) A method according to claim 86 wherein said data manager controls the reading of data from said data file and the placing of that data on a virtual data bus.

88. (New) A method according to claims 87 and 84 wherein when an element specific parameter in said execution is required, reference is made to data on said data bus.

89. (New) A method according to claim 75 wherein said user defined algorithmic expression comprises arbitrary logic having dependence on none, one or more sets of numeric data and/or syntactic key words.

90. (New) A method according to claim 89 wherein element specific-parameters are defined in a said user defined algorithmic expression and comprise executable mathematical equations and respective data relating to a specific class of element.

91. (New) A method according to claim 90 wherein said mathematical equations are guidance laws specific to a said class of element.

92. (New) A method according to claim 75 wherein the result of said execution step is numeric values representative of the behaviour of said system.

93. (New) A method according to claim 75 wherein said execution step includes executing a C++ class object that includes said compiled generic description.

94. (New) A method according to claim 93 wherein said C++ class object provides entry points to set the initial values of predetermined characteristics.

95. (New) A system for providing numerical output representative of the behaviour of a system comprising:

a first data storage containing one or more programs of compiled generic system descriptions each having predetermined characteristics that affect the behaviour of said system in a predetermined environment;

a second data storage containing at least a data file that contains one or more sets of numeric data and/or syntactic key words and/or a user defined algorithmic expression all related to a said predetermined characteristic being data that is not included in the complied version of the generic description; and

a data processor to execute a said program obtained from said first data storage using said complied generic description with a predetermined interval to calculate the behaviour of said system and using data obtained from said data file without recompiling the generic description to include the data obtained from the data file to calculate the behaviour of said system.

96. (New) A system according to claim 95 wherein said predetermined characteristics are defined by equations of motion based on a predetermined number of degrees of freedom of motion.

97. (New) A system according to claim 95 wherein said execution includes an interval step integration of the one or more elements in a said system using one or more of said contents of said data file.

98. (New) A system according to claim 96 wherein said interval is time.

99. (New) A system according to claim 97 wherein said execution includes at least one derivative function and at least one time-step numeric integration method.

100. (New) A system according to claim 98 wherein a said integration is used once every time interval.

101. (New) A system according to claim 99 wherein said derivative function is used by said integration method one or more times every time-step.

102. (New) A system according to claim 100 wherein following each time-step an array of one or more pointers to integration variables is updated allowing further integration variables to be created between time-steps.

103. (New) A system according to claim 98 wherein said integration function comprises a predetermined number of system element generic descriptions.

104. (New) A system according to claim 102 wherein said predetermined numbers of system element generic descriptions are ordered for use by said derivative function.

105. (New) A system according to claim 103 wherein when an element specific parameter in said calculation is required, reference is made to data in said data file.

106. (New) A system according to claim 75 further comprising a data manager for managing the flow of data to and from said data processor.

107. (New) A system according to claim 106 wherein said data manager controls the reading of data from said data file and the placing of that data on a virtual data bus with in the data processor.

108. (New) A system according to claims 103 and 106 wherein when an element specific parameter in said calculation is required, reference is made to data on said virtual data bus.

109. (New) A system according to claim 95 wherein said user defined algorithmic expression comprises arbitrary logic having dependence on none, one or more sets of numeric data and/or syntactic key words.

110. (New) A system according to claim 108 wherein element specific parameters are defined in a said user defined algorithmic expression and comprise executable mathematical equations and respective data relating to a specific class of element.

111. (New) A system according to claim 109 wherein said mathematical equations are guidance laws specific to a said class of element.

112. (New) A system according to claim 95 wherein said execution includes executing a C++ class object that includes said complied generic description.

113. (New) A system according to claim 112 wherein said C++ class object provides entry points to set the initial values of predetermined characteristics.